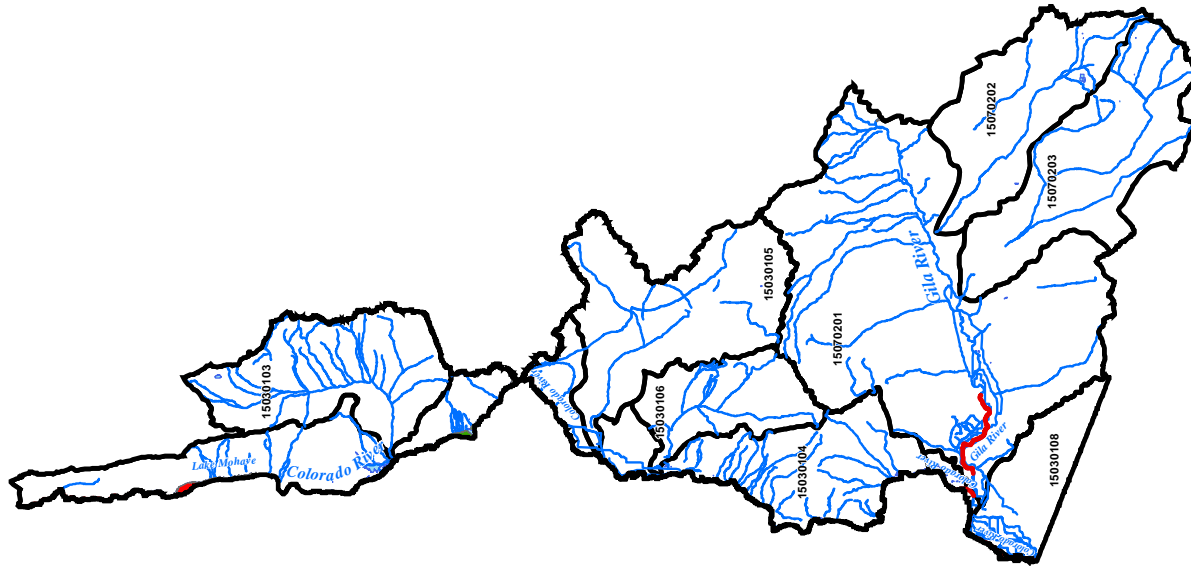


Colorado / Lower Gila Watershed 2012/2014 Assessment for Streams and Lakes



Legend

Assessed Lakes - 2012
ADEQ and EPA Listings

- Attaining
- Inconclusive
- Not Attaining
- EPA Impaired
- Impaired

HUC Watershed Boundaries

Assessed Streams - 2012
ADEQ and EPA Listings

- Attaining
- Inconclusive
- Not Attaining
- EPA Impaired
- Impaired

Lakes
Streams

See Individual HUC Printouts
for Waters not Labeled

ADEQ
Arizona Department
of Environmental Quality

IMPAIRMENT STATUS

Selenium (2004)

DWS - Inconclusive • FC - Inconclusive • FBC - Inconclusive
AGI - Inconclusive • AGL - Inconclusive • A&Wc - Impaired

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Selenium ^d	2 ug/L	11/16/2006	2.1 ug/L	A&Wc chronic remains impaired. 4 exceedances in the assessment period. Note: These exceedances are based on dissolved selenium concentrations.
		5/17/2007	2.2 ug/L	
		8/29/2007	2.2 ug/L	
		11/28/2007	2.2 ug/L	

Monitoring Summary

Sampling period:

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BELOW HOOVER DAM USGS 09421500	CLCLR346.35	101484	USGS	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(6-14 dissolved) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, selenium, silver, uranium, zinc	(3-6) Nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(2-14) Dissolved oxygen, pH, SSC, total dissolved solids, fluoride, pesticides

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	<i>E. coli</i> , lead, copper, manganese, arsenic, chromium, boron
Missing Seasonal Distribution	Dissolved oxygen, <i>E. coli</i> , lead, copper, manganese, arsenic, chromium, boron
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
High	Collect selenium samples to support TMDL development. Collect all core parameters to represent at least 3 seasons during the assessment period.

Impairment Discussion
Reach remains impaired for selenium (2004). No new samples since last assessment.

IMPAIRMENT

Selenium (2010)

DWS - Attaining • FC - Attaining • FBC - Attaining
 AGI - Attaining • AGL - Attaining • A&Ww - Impaired

No Exceedances

Monitoring Summary

Sampling period: 8/31/2006 - 7/15/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
BELOW PARKER DAM USGS 09427520	CLCLR195.22	100742	USGS	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(6-8) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(8) Nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1-8) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids, fluoride

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
High	Collect more selenium samples for TMDL development. Good core parameter coverage with small number of samples.

Impairment Discussion
Reach remains impaired for selenium (2010). No new samples since last assessment.

COLORADO RIVER

Imperial Dam - Gila River
15030107-003
15.3 Miles

Category 5
Impaired

Selenium (2010)

DWS - Attaining • FC - Attaining • FBC - Attaining
AGI - Attaining • AGL - Attaining • A&Ww - Impaired

No Exceedances

Monitoring Summary

Sampling period: 8/29/2006 - 7/22/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE IMPERIAL DAM USGS 09429490	CLCLR048.36	100752	USGS	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(5-8) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(1-9) Nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1-9) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids, fluoride

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
High	Collect selenium samples in support of TMDL development. Good core parameter coverage.

Impairment Discussion
Reach remains impaired for selenium (2010). No new data since last assessment.

Selenium and low dissolved oxygen (2006)

DWS - Attaining • FC - Attaining • FBC - Attaining
AGI - Attaining • AGL - Attaining • A&Ww - Impaired

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Boron	1000 µg/L (AGI) 1400 µg/L (DWS) 186667 µg/L (FBC)	2/14/2007	310000 µg/L	AGI, DWS, and FBC are attaining with 1 exceedance in 12 samples (binomial).
Dissolved oxygen	6.0 mg/L	8/30/2006	5.5 mg/L	A&Ww remains impaired with 3 exceedances in 23 samples. No new data since last assessment.
		8/28/2007	5.5 mg/L	
		7/23/2008	5.6 mg/L	
Manganese	10000 µg/L (AGI) 980 µg/L (DWS)	2/14/2007	130000 µg/L	AGI and DWS are attaining with 1 exceedance in 13 samples (binomial).
Mercury ^d	0.01 µg/L	1/29/2008	0.011 µg/L	A&Ww is attaining. This exceedance occurred during a storm event and does not represent chronic conditions.
SSC	80 mg/L	12/20/2007	143 mg/L	A&Ww is attaining. No annual median exceedances.
Selenium	2 µg/L	8/30/2006	2.3 µg/L	A&Ww remains impaired. No new samples since last assessment.
		4/9/2008	2.2 µg/L	

Monitoring Summary

Sampling period: 8/30/2006 - 12/4/2008

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
ABOVE MORELOS DAM USGS 09522000	CLCLR023.30	100744	USGS	USGS
BELOW YUMA WWTP	CLCLR026.80	105308	ADEQ	Ambient
ABOVE YUMA WWTP	CLCLR029.59	105309	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(10-16) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(6-27) Ammonia, nitrate, nitrite, nitrite/nitrate, nitrogen, phosphate, phosphorus, total Kjeldahl nitrogen	(4-27) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids, pesticides, fluoride

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Selenium

Priority	Monitoring Recommendations
High	Collect samples to support dissolved oxygen and selenium TMDLs. Collect more samples for parameters showing exceedances (boron and manganese). Good core parameter coverage.

Impairment Discussion
Reach remains impaired for selenium and dissolved oxygen (2006). There are 7 dissolved selenium values over a two year period (2007-2008) though the average is only slightly higher than the (total) standard. Situation seems slightly improved from 2002-2004 where the average value was about 2.5 ug/L.

Boron and selenium (2004)FC - Attaining • FBC - Attaining • AGI - Impaired
AGL - Attaining • A&Ww - Impaired**No Exceedances****M**onitoring Summary

Sampling period: 2/13/2007 - 5/30/2007

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
NEAR DOME, AZ USGS 09520280	CLGLR010.53	100455	ADEQ	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
(1-3) Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, selenium, zinc	(3) Nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(2-3) Dissolved oxygen, <i>E. coli</i> , pH, SSC, total dissolved solids, organic compounds/pesticides

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Boron, copper (dissolved)
Missing Seasonal Distribution	Boron, copper (dissolved)
Lab Detection Limits Not Low Enough	Selenium

Priority	Monitoring Recommendations
High	Collect boron and selenium samples in support of TMDL development. Use a lower detection limit for selenium.

Impairment Discussion
Reach remains impaired for boron and selenium (2004). No new data since the last assessment. All selenium data had method reporting limits above the A&W chronic standard.

DWS - Inconclusive • FC - Inconclusive • FBC - Inconclusive
AGI - Attaining • AGL - Attaining • A&Ww - Attaining

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Beryllium	4 ug/L (DWS) 84 ug/L (FC)	10/28/2008	130 ug/L	DWS and FC are inconclusive with 1 exceedance in 5 samples (binomial).
<i>E. coli</i>	235 cfu/100 mL, SSM Because of the size of this reservoir, ADEQ assesses bacteria exceedances at each site.	North Rotary Beach	7/17/2008 1230 cfu/100 mL	FBC is inconclusive with only 1 exceedance.
		South Rotary Beach	7/24/2008 411 cfu/100 mL	FBC is inconclusive for South Rotary Beach and Middle Rotary Beach. Exceedances at each site occurred only 4 days apart (in different aggregated weeks), and subsequent monitoring by Mohave County Health Department showed no exceedances.
			7/28/2008 1300 cfu/100 mL	
		Middle Rotary Beach	7/24/2008 2420 cfu/100 mL	
			7/28/2008 1986 cfu/100 mL	
	126 cfu/100 mL, Geometric mean	Middle Rotary Beach	7/17/2008 - 7/29/2008 147 cfu/100 mL	FBC is inconclusive with 1 geometric mean exceedance for Middle Rotary Beach. Not enough samples to calculate any other monthly geometric means for this site.

Monitoring Summary

Sampling period: 1/31/2007 - 6/3/2009

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
MID LAKE	CLHAV-B	100102	ADEQ	Clean Lakes Program
AT PARKER DAM USGS 09427500	CLHAV-A	100098	ADEQ	Clean Lakes Program
AT THOMPSON BAY	CLHAV-TB2	106242	ADEQ	Clean Lakes Program
SITE C	CLHAV-C	100099	ADEQ	Clean Lakes Program

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
COLORADO RIVER	CLHAV-CRA	100101	ADEQ	Clean Lakes Program
SOUTH ROTARY BEACH	CLHAV-SROTS	100121	ADEQ	Clean Lakes Program
MIDDLE ROTARY BEACH	CLHAV-MROTS	100122	ADEQ	Clean Lakes Program
NORTH ROTARY BEACH SHORE	CLHAV-NROTS	100123	MOHD	Clean Lakes Program
AT WEST STATE BEACH SHORE	CLHAV-WSBSH	100171	ADEQ	Clean Lakes Program
AT EAST STATE BEACH SHORELINE	CLHAV-ESBSH	100117	ADEQ	Clean Lakes Program
AT CRAZY HORSE COVE	CLHAV-CHC	100139	ADEQ	Clean Lakes Program
OFF WINDSOR BEACH	CLHAV-OFFWB	100155	ADEQ	Clean Lakes Program
AT NORTH CHANNEL	CLHAV-NCH	100168	MOHD	Beach Monitoring (<i>E. coli</i>)
CRAZY HORSE BEACH	CLHAV-CRAZ	102352	ADEQ	Clean Lakes Program
WINDSOR COVE	CLHAV-WIND	102363	ADEQ	Clean Lakes Program
MID THOMPSON BAY	CLHAV-TB	100170	ADEQ	Clean Lakes Program
AT LONDON BRIDGE	CLHAV-MC	100150	ADEQ	Clean Lakes Program
AT NAUTICAL COVE	CLHAV-NAUTC	100151	ADEQ	Clean Lakes Program
AT WINDSOR BEACH SOUTH OF BOAT RAMP	CLHAV-WBSR	100130	ADEQ	Clean Lakes Program

Metal Samples	Nutrients & Related Samples	Other Samples
(17-26) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, zinc	(25-26) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(28-35) Dissolved oxygen, <i>E. coli</i> , pH, total dissolved solids, fluoride

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	Beryllium, <i>E. coli</i>
Missing Core Parameters	None
Missing Seasonal Distribution	None
Lab Detection Limits Not Low Enough	Cadmium (dissolved), copper (dissolved), lead (dissolved), mercury (dissolved), nickel (dissolved), selenium, silver (dissolved), thallium, zinc (dissolved), barium, chromium, boron

Priority	Monitoring Recommendations
High	Collect more <i>E. coli</i> samples to stay on top of situation. Collect additional beryllium samples due to the exceedance. Use a lower lab detection limit for selenium and collect additional selenium samples (Colorado River is impaired for selenium in upstream reaches). Good core parameter coverage.



LAKE MOHAVE

15030101-0960
27044 Acres

Category 5
Impaired

Colorado - Lower Gila

IMPAIRMENT STATUS

Selenium (2010)

DWS - Inconclusive • FC - Inconclusive • FBC - Inconclusive
AGI - Inconclusive • AGL - Inconclusive • A&Wc - Impaired

Exceedances

Parameter	Applicable Standard	Date	Result	Designated use support comments
Selenium	2 ug/L	3/28/2007	2.9 ug/L	A&Wc remains impaired. No new samples since last assessment.
		8/14/2007	2.2 ug/L	
		9/11/2007	3.3 ug/L	
		2/5/2008	2.2 ug/L	
		5/13/2008	2.4 ug/L	
		7/8/2008	2.5 ug/L	
		12/9/2008	2.8 ug/L	

Monitoring Summary

Sampling period: 12/11/2006 - 3/3/2009

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
WILLOW BEACH FISH HATCHERY	CLMOHWBFH	107202	USFWS	Permit monitoring
AT DAVIS DAM USGS 09422500	CLMOH-A	100030	ADEQ	CLP

Metal Samples	Nutrients & Related Samples	Other Samples
(1-28) Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, zinc	(1) Ammonia, nitrite/nitrate, nitrogen, phosphorus, total Kjeldahl nitrogen	(1) Dissolved oxygen, pH, total dissolved solids, fluoride

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , lead, copper, manganese, nitrite/nitrate, fluoride, arsenic, chromium, boron
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , lead, copper, manganese, nitrite/nitrate, fluoride, arsenic, chromium, boron
Lab Detection Limits Not Low Enough	Cadmium (dissolved), arsenic , barium, chromium

Priority	Monitoring Recommendations
High	Collect selenium samples to support TMDL development. Needs core parameter sample number and seasonal distribution coverage.

Impairment Discussion
Remains impaired for selenium (2010). No new data since last assessment.

PAINTED ROCK BORROW PIT LAKE

15070201-1010
186 Acres

Category 5
Impaired

Colorado - Lower Gila

Low dissolved oxygen (1992)

FC - Impaired • FBC - Inconclusive AGI - Inconclusive
AGL - Inconclusive • A&Wc - Impaired

Monitoring Summary

Sampling period: No current data

Site Name(s)	Site ID #	DEQ #	Sampling Agency	Purpose
Southwest Shore	CLPRL-D	102515	COE	Ambient

Metal Samples	Nutrients & Related Samples	Other Samples
None	None	None

Data Gaps and Monitoring Needs

Exceedances Needing More Samples to Assess	None
Missing Core Parameters	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , lead, copper, manganese, boron
Missing Seasonal Distribution	Zinc (dissolved), dissolved oxygen, pH, cadmium (dissolved), copper (dissolved), <i>E. coli</i> , lead, copper, manganese, boron
Lab Detection Limits Not Low Enough	None

Priority	Monitoring Recommendations
Medium	Collect pesticide and dissolved oxygen samples to support TMDL development when the lake refills.

Impairment Discussion
Fish consumption advisories for pesticides in effect since 1991. EPA relisted DDT metabolites, toxaphene, and chlordane in 2002. Based on recent water quality and fish tissue data ADEQ is proposing to delist this waterbody for pesticides.

Little Colorado River Watershed

Watershed Description

This watershed is defined by the Little Colorado River, from its headwaters to the Colorado River, and tributaries to the San Juan River which flow into north and east into New Mexico and Utah. This area contains horizontally stratified sandstone and limestone which have eroded to form canyon and plateaus. In a few areas, igneous rocks have deposited on sedimentary formations due to volcanic activity. Natural erosion can be easily increased by human activities in such locations.

Land ownership is divided approximately as: 60% tribal, 12% federal, 12% private, 6% state. This 26,794 square mile watershed is sparsely populated outside of Flagstaff, with 236,500 people (including Flagstaff) (2000 census). Land use is primarily open grazing, forestry, recreation, and mining. The area contains four national monuments, four wilderness areas, and two national forests with varying levels of use restrictions.

Elevations range from 12,600 feet (above sea level) at Humphrey's Peak near Flagstaff to 2,700 feet near the Colorado River. However, most of the watershed is above 5000 feet elevation, with desert highlands flora and fauna, and coldwater aquatic communities where perennial waters exist.

Water Resources

The climate provides approximately 10 inches of rain and 15 to 20 inches of snow yearly. Snow melt has been a primary source of water for this region. The flow on the Little Colorado River is "interrupted" (stretches of perennial, intermittent, and ephemeral flow). Perennial flow is generally limited to headwaters streams.

An estimate of surface water resources in the Little Colorado Watershed is provided in the following table. Waters on Tribal lands are not assessed by ADEQ; therefore, those statistics are shown separately.

Estimated Surface Water Resources in the Little Colorado Watershed

	Perennial	Intermittent	Ephemeral
Stream miles	640	1,655	9,635
	Perennial	Non-perennial	
Lake acres	16,050	6,830	

Additional Water Resources Located on Tribal Lands – Not assessed

	Perennial	Intermittent	Ephemeral
Stream miles	305	170	15,310
	Perennial	Non-perennial	
Lake acres	5,295	118	

Ambient monitoring focuses on perennial waters; however, special investigations may identify water quality problems on intermittent and even ephemeral waters. Estimated miles and acres are based on USGS digitized hydrology at 1:100,000 and have been rounded to the nearest 5 miles or 5 acres.

Assessments

The Little Colorado River Watershed can be separated into the following drainage areas (subwatersheds):

14080105	La Plata River Drainage Area (Tribal Land – Not assessed)
14080106	Charco River Drainage Area (Tribal Land – Not assessed)
14080201	Cottonwood Creek Drainage Area (Tribal Land – Not assessed)
14080204	Chinle Wash Drainage Area (Tribal Land – Not assessed)
14080205	Oljeto Wash Drainage Area (Tribal Land – Not assessed)
15020001	Little Colorado River Headwaters Drainage Area
15020002	Upper Little Colorado River Drainage Area
15020003	Carrizo Wash Drainage Area
15020004	Zuni River Drainage Area
15020005	Silver Creek Drainage Area
15020006	Upper Puerco River Drainage Area (Tribal Land – Not assessed)
15020007	Lower Puerco River Drainage Area
15020008	Middle Little Colorado River Drainage Area
15020009	Wide Ruin Wash Drainage Area
15020010	Chevelon Canyon Drainage Area
15020011	Puerco Colorado Wash Drainage Area
15020012	Oraibi Wash Drainage Area (Tribal Land – Not assessed)
15020013	Polacca Wash Drainage Area (Tribal Land – Not assessed)
15020014	Jadito Wash Drainage Area (Tribal Land – Not assessed)
15020015	Canyon Diablo Drainage Area
15020016	Lower Little Colorado River Drainage Area
15020017	Dinnebito Wash Drainage Area (Tribal Land – Not assessed)
15020018	Moenkopi Wash Drainage Area (Tribal Land – Not assessed)

These drainage areas and the surface waters assessed as “attaining” or “impaired” are illustrated on the following watershed map. Methods used to complete these assessments are described in the “Surface Water Assessment Methods and Technical Support” document.

Little Colorado/San Juan Watershed

